

ONTARIO MINISTRY OF ENVIRONMENT



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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

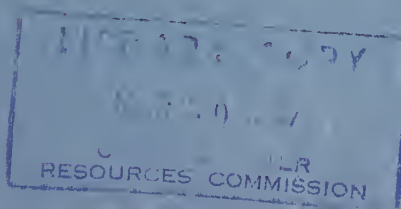
of the

VILLAGE OF BELMONT

COUNTY OF ELGIN

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Report on a water pollution
survey of the .village of Belmont
in the county of Elgin.

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THE
ONTARIO WATER RESOURCES
COMMISSION

REPORT ON A

WATER POLLUTION SURVEY

OF THE

VILLAGE OF BELMONT

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COUNTY OF ELGIN

DIVISION OF SANITARY ENGINEERING

1966

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was conducted in the Village of Belmont on May 5, 1966. The purpose of the survey was to locate and record all significant sources of water pollution within the Village of Belmont.

The Ontario Water Resources Commission conducts such surveys, routinely and upon request throughout the province, as part of its objective to eliminate existing and potential sources of stream pollution.

When adverse conditions are found to exist, recommendations are made to assist the Village in the initiation and development of a pollution abatement programme.

PREVIOUS SURVEYS BY OWRC STAFF

A water pollution survey was conducted on June 11, 1962, by OWRC staff. It was indicated in the survey report that grossly polluted matter had been discharged to Kettle Creek.

The need for a municipal sewage treatment system for the village was recommended in the report.

INTERVIEWS WITH OFFICIALS

Interviews were held with Mr. C.N. Clarke, Reeve of the village and Mr. I. Charlton, Public Health Inspector with the Elgin-St. Thomas Health Unit.

VILLAGE OF BELMONT

The Village of Belmont is situated on Highway No. 74 approximately five miles south of Highway No. 401. According to the 1966 Municipal Directory, the population of Belmont was approximately 695 during 1965. The taxable assessment was \$780,000.

WATERSHED

The village is part of the Kettle Creek Watershed which drains to Lake Erie. Kettle Creek flows through the village in a westerly direction, and all of the storm sewer, drainage ditch and private drain discharges eventually reach the creek.

TOPOGRAPHY

A review of well driller records in the Belmont area indicates that the overburden is mainly clay with occasional pockets of sand and gravel. The land slopes gradually in the built-up areas of the village and rather sharply as it reaches the creek.

WATER USES

Kettle Creek has limited use for recreational activities and municipal purposes. Its main use to the municipality is the receiving of storm sewer discharges and surface water run-off.

WATER SUPPLY

The village has a municipal water system which presently supplies most of the residents and businesses. The system derives its water from a drilled well and is distributed to the consumers without treatment. The present well does not have sufficient

capacity to fulfil all of the community's requirements at peak periods. Additional ground water sources are being explored by the municipality at the present time.

SEWAGE DISPOSAL FACILITIES

Private septic tank systems are utilized in the absence of municipal sewage works. There are instances where sewage is discharged to the municipal storm sewer system, particularly in the commercial section of the village, where adequate area for sub-surface sewage disposal systems is not available.

Since the formation of the Elgin-St. Thomas Health Unit, new homes or businesses have been required to install private sewage disposal systems under the unit's supervision.

PROPOSALS RE: SEWAGE WORKS

At the present time, the village is not considering a sewage treatment programme. A vote was taken in 1963 and the residents turned down a proposal for a partial sewage treatment system.

INDUSTRY

The Borden Company Limited is the only industry located in the village which could contribute industrial wastes to the creek. This plant provides seasonal treatment to its wastes by means of spray irrigation. The method provided is satisfactory during warm weather, but necessitates the discharging of milk wastes to the creek without treatment during cold weather. It has been suggested in a



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Commission report of the plants waste treatment operation, that consideration be given to year-round treatment facilities.

SAMPLING PROCEDURE

Samples were collected from storm sewer outlets and drainage ditches in the village to determine whether contaminated matter was present in the discharges to the creek.

The results of analyses performed on the samples are appended to the report.

Chemical analyses and bacteriological examination of the samples was conducted at the OWRC laboratory to determine their sanitary quality.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

Bacteriological Examination

The Membrane Filter Technique is used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are generally minimal in other water pollutants.

The results of the examinations are reported as "M.F. Coliforms per 100 ml".

The Commission's objective for a storm sewer discharge is a coliform density of not greater than 2,400 organisms per 100 ml.

Sanitary Chemical Analyses

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm), and is an indication of the amount of oxygen required for the stabilization of decomposable organic matter in the water. The completion of the laboratory test requires five days, under a controlled incubation temperature of 20°C.

The Commission's objective for a storm sewer discharge is an upper limit of 15 ppm.

Solids

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses in regard to sanitary quality of water.

The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish.

The Commission's objective for water being discharged from a storm sewer is an upper limit of 15 ppm suspended solids.

ABS

The presence of anionic detergents as alkyl benzene sulfonate (ABS) usually is an indication that domestic waste is present.

SAMPLE RESULTS

The laboratory results revealed that polluting material was present, to some extent, in all of the drains sampled.

Although an excessive BOD was only present in one sample, the high coliform count and presence of ABS in the samples indicate that partially treated or untreated wastes were present in the village's storm drains.

The storm sewers servicing the portion of the village located on the north side of Kettle Creek exhibited the greatest degree of polluted material. This may be attributed to the business section and the older residential area.

SUMMARY

A water pollution survey of the Village of Belmont was conducted on May 5, 1966.

Samples were collected for chemical analyses and bacteriological examination from the storm sewers serving the village. The results of the samples indicated that polluting material was being discharged to Kettle Creek.

CONCLUSION

The Commission is concerned with all sources of pollution which may gain access to any watercourse in the Province of Ontario. Industrial and domestic sewage should receive adequate treatment before being discharged to a stream. Correction of the adverse conditions found during this survey may be accomplished by the

severance of all private sewage connections to the storm sewers, or the installation of sanitary sewers and a sewage treatment plant. In a great number of cases, this latter procedure is the more desirable.

RECOMMENDATIONS

It is recommended that the discharging of contaminated waste water to Kettle Creek be discontinued.

Approved by:



J.M. Timko, P.Eng.,
District Engineer,
Division of Sanitary Engineering.

bw

Prepared By:

R.G. Quance.

All analyses except pH reported
in ppm unless otherwise indicated.

VILLAGE OF BELMONT

STORM DRAINS

MAY 5, 1966.

Lab. No.	5-Day BOD	Total	SOLIDS		Anionic Detergents as ABS	BACTERIOLOGICAL EXAMINATION	
			<u>Susp.</u>	<u>Diss.</u>		Coliforms per 100 ML Membrane Filter	
4682	7.4	874	4	870	0.6	740,000	
4683	8.0	1102	58	1044	0.2	140	
4684	8.4	1006	35	971	0.2	16,100	
4685	3.6	474	99	375	0.2	87,000	
4686	36	734	30	704	1.5	12,900,000	
4682	1. Drain Outlet - N.W. Side of Bridge.						
4683	2. Drain Outlet - S.E. Side of Bridge.						
4684	3. Drain Outlet - S.W. Side of Bridge.						
4685	4. Open Ditch on West Side of Village.						
4686	5. Drain Outlet behind drugstore - draining past of north section of village.						



LEGEND

- STORM SEWER
- DITCH DRAIN
- SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION

VILLAGE OF BELMONT

WATER POLLUTION SURVEY 1966

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